

Rejection Under 35 U.S.C. § 103(a)

The Examiner has maintained the rejection of claims 1-4 and 12 under 35 U.S.C. § 103(a) as unpatentable over Bartel, et al., (WO 97/31001; Reference N) (Paper No. 13, pages 2-3). Applicants respectfully traverse.

The Examiner states that:

“Himmler et. al. teaches the instant compound, 3-Quinolincarboxylic acid, 8-cyano-1-cyclopropyl-6-fluoro-1,4-dihydro(octahydro-6H-pyrrolo[3,4-b]pyridin-6-yl)-4-oxo-, monohydrochloride, (4aS-cis)--. At page 15, lines 16-20, see Beispiel 2. The difference between the prior art compound and the instantly claimed compounds is the extent of the salt formation. In the instant compound, the salt is semi-hydrochloride of 8-cyano-1-cyclopropyl-7-(1S,6S-2,8diazabicyclo-[4,3,0]nonan-8-yl)-6-fluoro-1,4-dihydro-4-oxo-3-quinolincarboxylic acid. It's axiomatic in organic chemistry that acids will react with bases to form salts. Since there are several nitrogen atoms present in the instant compound, it is possible to form 1 to 3 acid-addition salts of HCL. It would have been obvious to one of ordinary skill to form a semihydrochloride from a monohydrochloride of the 8-cyano-1-cyclopropyl-7-(1S,6S-2,8diazabicyclo-[4,3,0]nonan-8-yl)-6-fluoro-1,4-dihydro-4-oxo-3-quinolincarboxylic acid. For instance, at page 15, lines 16-20 of the Himmler reference, see Beispiel 2, where a disclosed species is exemplified. Accordingly, the compounds are deemed unpatentable therefrom in the absence of a showing of unexpected results for the claimed compounds over those of the generic prior art compounds.”

The Examiner states that there are several nitrogen atoms present in the instant compound and it is possible to form 1 to 3 acid addition salts. However, the compound of the present invention is not a mono-, di-, or trihydrochloride. In fact, the compound is a semihydrochloride, as exemplified on page 5 of the specification, that is, two compound molecules per one HCl molecule.

Furthermore, the Examiner also states that it would have been obvious to one of ordinary skill to form a semihydrochloride from a monohydrochloride. Although the presence of nitrogens may lead the skilled person to prepare a mono-, di-, or trihydrochloride, there is no suggestion in the prior art disclosure that would motivate one skilled in the art to prepare a semihydrochloride, or for that matter, a di-, or trihydrochloride. Thus, Applicants do not see why it is obvious, as claimed by the Examiner, to form a semihydrochloride from a monohydrochloride. There is no suggestion or teaching in the prior art in any way to prepare a semihydrochloride from a monohydrochloride.

To qualify as prior art under 35 U.S.C. § 103, the prior art must suggest to those of ordinary skill in the art that they should make the claimed compound and that in making the compound, those of ordinary skill in the art would have a reasonable expectation of success. Notably, the suggestion and the

reasonable expectation of success must be adequately founded in the prior art and not in the Applicant's disclosure. Moreover, the prior art reference must teach or suggest all the claim limitations.

As discussed above, there is no suggestion in the prior art to prepare a semihydrochloride, and furthermore, the prior art reference does not provide the requisite reasonable expectation of success. That is, based on the disclosure of Bartel, et al., it is not apparent that semihydrochloride compounds could actually be made. Thus, the disclosure of Bartel, et al., does not provide any suggestion or reasonable expectation of success for the preparation of a semihydrochloride, and additionally, Bartel, et al., does not teach or suggest all the claim limitations, specially, a semihydrochloride. Therefore, Bartel, et al., does not meet the requirements to support an obviousness rejection under 35 U.S.C. § 103.

The Examiner also states that:

"The applicant has not shown an unexpected result in the formation of these salts. The applicant should provide a declaration showing unexpected results for the claimed compounds over those of the generic prior art compounds." (Paper No. 13, page 3).

As described on pages 4-5 of the specification, the hydrochloride of formula (IV) which is disclosed in Bartel, et al., demonstrated a solubility of 2.8% (w/w). Unexpectedly, the semihydrochloride of the present invention exhibited a solubility of 19% (w/w); considerably more soluble than the hydrochloride disclosed in the prior art. Thus, unexpected results for the claimed compounds over those of the generic prior art compounds have been demonstrated. Applicants believe that the disclosure in the specification should be adequate for a showing of unexpected results.

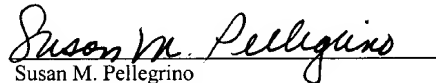
It is therefore respectfully submitted that Bartel, et al., (WO 97/31001) fail to teach or suggest the compounds as presently claimed, and that the current invention is novel and nonobvious in view of the prior art references. Furthermore, Applicants have demonstrated unexpected results for the claimed compounds over those of the generic prior art compounds. For the foregoing reasons, Applicants respectfully request reconsideration and withdrawal of the present rejection, and Applicants submit that claims 1-4 and 12, and dependent claims 5-11 and 15-24, are in condition for allowance.

CONCLUSION

For the foregoing reasons, Applicants submit that the claims are in condition for allowance and Applicants respectfully request reexamination of the present application, and reconsideration and withdrawal of the present rejections and objections. Should there be any further matter requiring consideration, Examiner Robinson is invited to contact the undersigned counsel.

If there are any further fees due in connection with the filing of the present reply, please charge the fees to undersigned's Deposit Account No. 13-3372. If a fee is required for an extension of time not accounted for, such an extension is requested and the fee should also be charged to undersigned's deposit account.

Respectfully submitted,

A handwritten signature in cursive script, reading "Susan M. Pellegrino", is written over a horizontal line.

Susan M. Pellegrino
Attorney for Applicants
Reg. No. 48,972

Date: November 12, 2003

Bayer Pharmaceuticals Corporation
400 Morgan Lane
West Haven, CT 06516-4175
Telephone: (203) 812-6450
Facsimile: (203) 812-6459